DANMARKS NATIONALBANK

Danes are Front-Runners in Electronic Payments

Well-functioning and modern market for payments

Kr. 24 billion

is moved every day. The systems ensure that payments are settled quickly and smoothly.

Read more

Instant payments enable quick transfer of funds

A few seconds

and the money is available to the payee.

Read more

Danes prefer electronic payments

No. 1 in EU

Each Dane swipes his or her payment card 300 times a year.

Read more

Denmark is a digital front-runner

77 per cent

of the Danes shop online. We are more digital than other EU-citizens.

Read more

**Denmark has a well-functioning
and modern market for payments**

Danes make electronic payments every day, for instance in physical stores, online or among themselves, totalling kr. 24 billion. These payments are known as retail payments.[1] Funds from the buyer to the seller are transferred through the common Danish retail payments infrastructure. In the course of one year, more than kr. 8,700 billion passes through the systems – equivalent to more than four times the Danish gross domestic product (GDP).

The large payment flows are processed through the Danes' retail payments infrastructure. This infrastructure comprises a set of IT systems, designed to settle Danish payments quickly, smoothly and securely. All banks in Denmark are connected to the payments infrastructure – either directly or indirectly through another bank. Direct participants hold a settlement account at Danmarks Nationalbank, and through this account payments can be transferred between all bank accounts in Denmark.

All retail payments are processed through one of the three clearing systems: *the Sumclearing*, *the Intradagclearing* or *the Straksclearing*, cf. Chart 1. The systems differ, inter alia, by having different settlement times, i.e. the time it takes to transfer the funds from the payer's account to the payee's account. The three systems handle different types of payment solutions. Examples of payment solutions are payment cards or transfers from one account to another account via online banking facilities.

The *Sumclearing* settles many of the most widely used payment solutions such as debit and credit cards. It typically takes one business day from the payer swipes his or her card until the funds are credited to the payee's bank account. The *Intradagclearing* settles transfers between bank accounts, known as credit transfers. In this system, payments are settled in several daily settlement cycles, and the funds are typically made available to the payee within a few hours. Credit transfers can also be settled in *the Straksclearing*. In this system, payments are settled instantly, entailing that

---

MobilePay Box 1

The MobilePay mobile payment solution was launched in the Danish payments market in 2013. This solution enabled private individuals to make transfers using their mobile phones. In just over three years, MobilePay in Denmark has been adopted by more than 3.3 million users, making more than 170 million payments in 2016.

The modernisation of the Danish payments infrastructure 2012-14 Box 2

The purpose of the modernisation project was to reduce the period of time from a payment is initiated until it is received. The project was a joint effort by the Danish financial sector and Danmarks Nationalbank and comprised a total of four initiatives:

- Faster settlement of Dankort payments made during weekends
- Faster settlement of large-value payments (transfers via Danmarks Nationalbank)
- The Intradagclearing
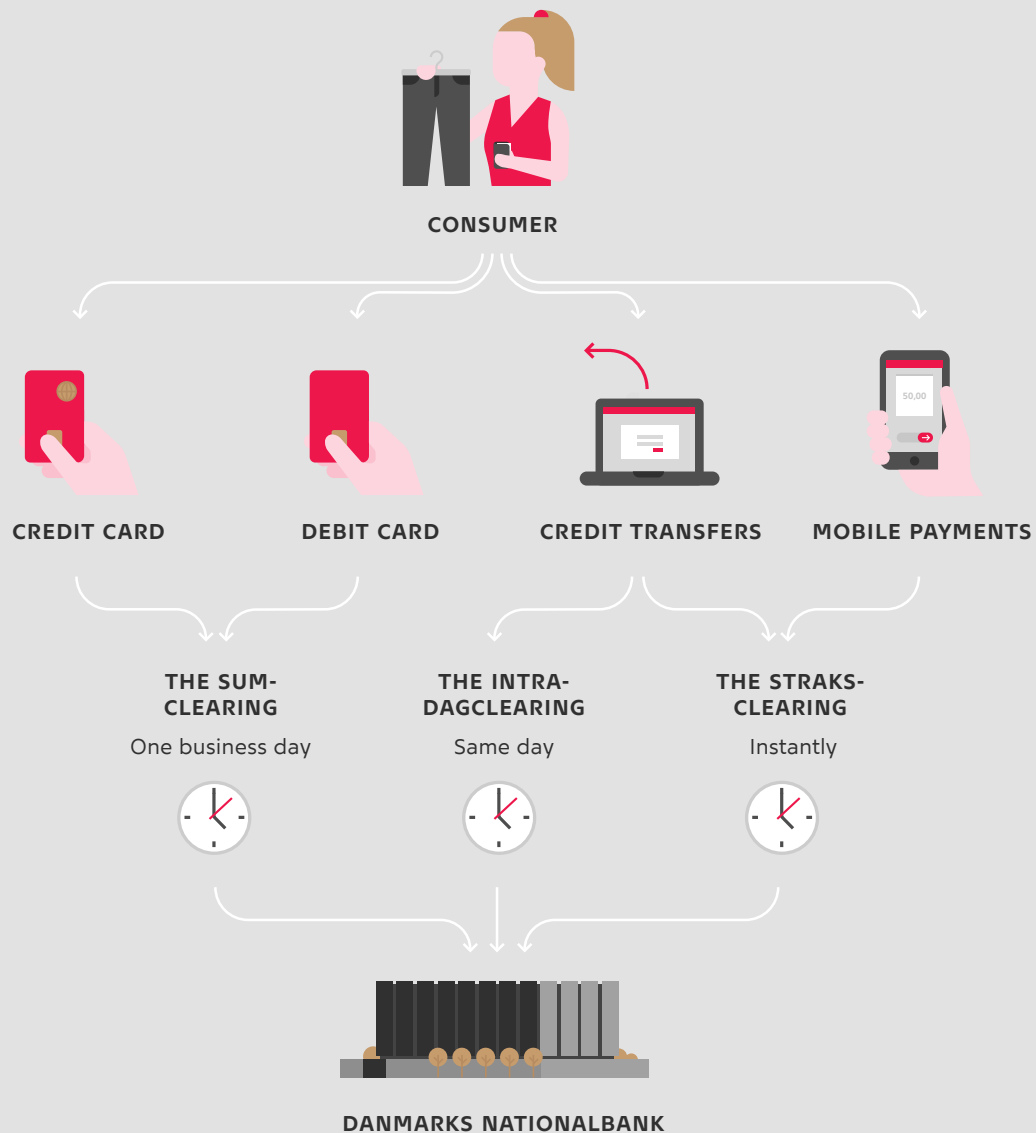- The Straksclearing.

November 2014 saw the completion of the final initiative (the Straksclearing) after which the common retail payments infrastructure consists of three systems for the settlement of retail payments, enabling citizens and firms in Denmark to transfer funds within seconds. The three systems are owned by FinanceDenmark.

Danmarks Nationalbank sees modernisation as a key element in its efforts to facilitate secure payments and contribute to financial stability in Denmark. Currently, Danmarks Nationalbank is replacing the existing systems, e.g. for the settlement of large, time-critical payments, by a new system, Kronos2. Danmarks Nationalbank is also monitoring technological advances with a view to future solutions, e.g. advances within distributed ledger technology.

---

1. The background for the modernisation project was *Report on domestic payment transfers in Denmark, January 2012* prepared by the working group on domestic payment transfers.

---

1   Retail payments also include payments made using inpayment forms, Betalingsservice (direct debit), LeverandørService (supplier service), Overførselsservice and automatic card payments. Payers can be households, firms or public authorities.

Chart 1   3

The transfer of funds through the systems

CONSUMER

CREDIT CARD   **DEBIT CARD**   **CREDIT TRANSFERS**   **MOBILE PAYMENTS**

THE SUM-CLEARING   **THE INTRA-DAGCLEARING**   **THE STRAKS-CLEARING**

One business day   Same day   Instantly

DANMARKS NATIONALBANK

the funds are made available to the payee within seconds. This applies 24/7/365. Payments transferred through the Straksclearing may not exceed kr. 500,000.

A common retail payments infrastructure such as the *Straksclearing* makes it easier to roll out new payment solutions to all Danes wishing to use them.

One example is the MobilePay mobile payment solution, which currently accounts for most payments in the *Straksclearing*. MobilePay is described in Box 1.

The *Straksclearing* was launched in November 2014 as the last step in a major process to modernise the Danish payments infrastructure. The project is described in more detail in Box 2.

Globally, the prevalence of instant payment systems is still limited.[2] To qualify as an instant payment, the payment must be transferable 24/7/365 and the funds must be made available to the payee within a short period of time.[3] With the existing systems, the latter requirement ranges from a few seconds to a couple of minutes. Thus, the Danish Straksclearing is at the fast end of the spectrum of instant payment systems world-wide.

In Europe, eight countries have systems enabling citizens to make instant payments, cf. Chart 2. Moreover, initiatives have been launched in the euro area to enable instant euro payments across euro member states.
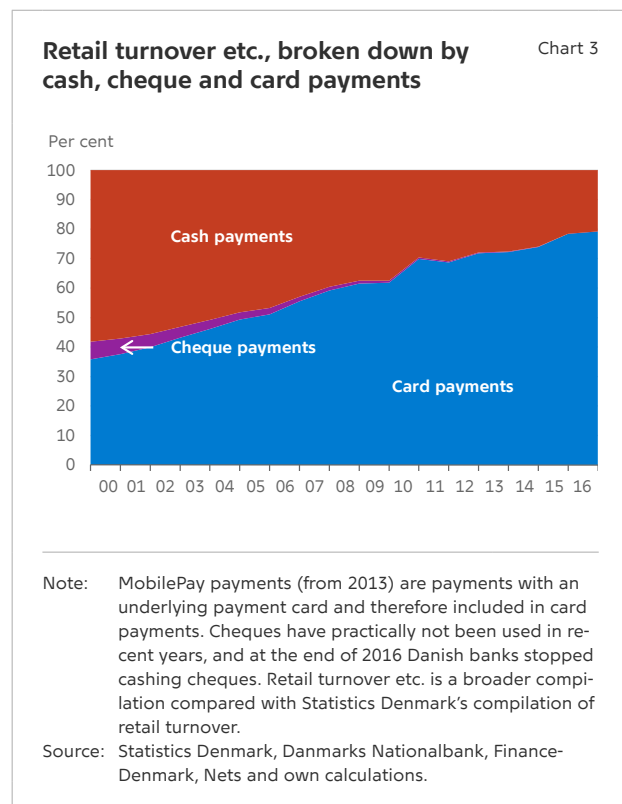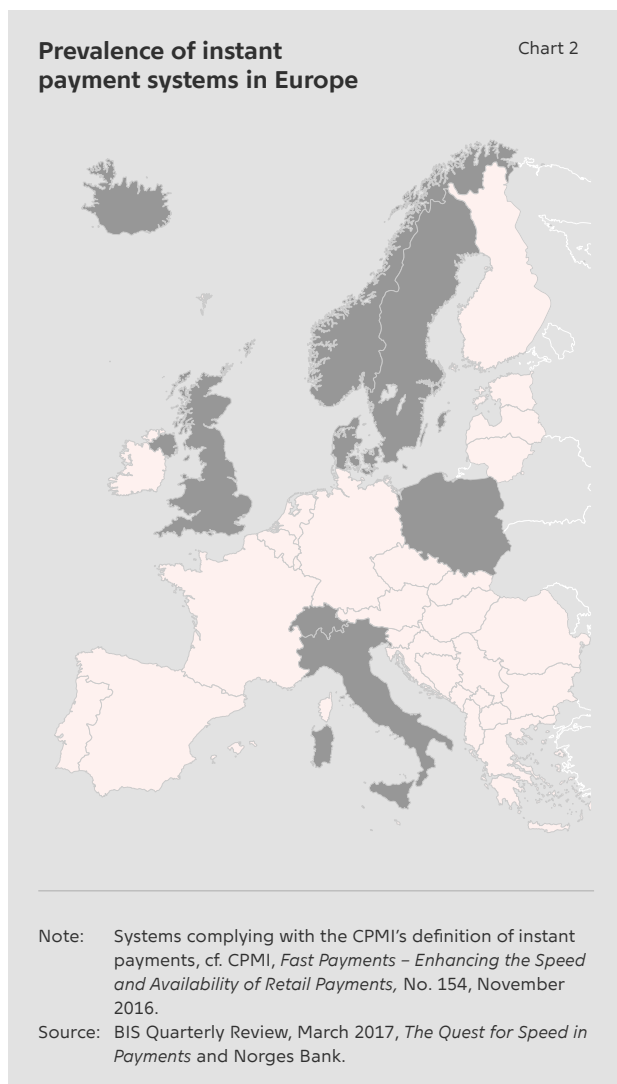
Danes opt for electronic solutions
For a number of years, cash payments have been declining as more and smarter electronic alternatives have been launched. Danish consumers primarily opt for electronic payment solutions, especially payment cards. In 2016, card payments were estimated to account for around 80 per cent of total retail turnover, cf. Chart 3.

Danes use cards more than any other EU citizens
Payment card use in the Nordic countries is generally much higher than in other European countries, cf. Chart 4. In 2015, the average Dane swiped his or her payment card 300 times. This is an increase of close to 50 per cent on 2011. All citizens are entitled to a payment card, cf. Box 3.
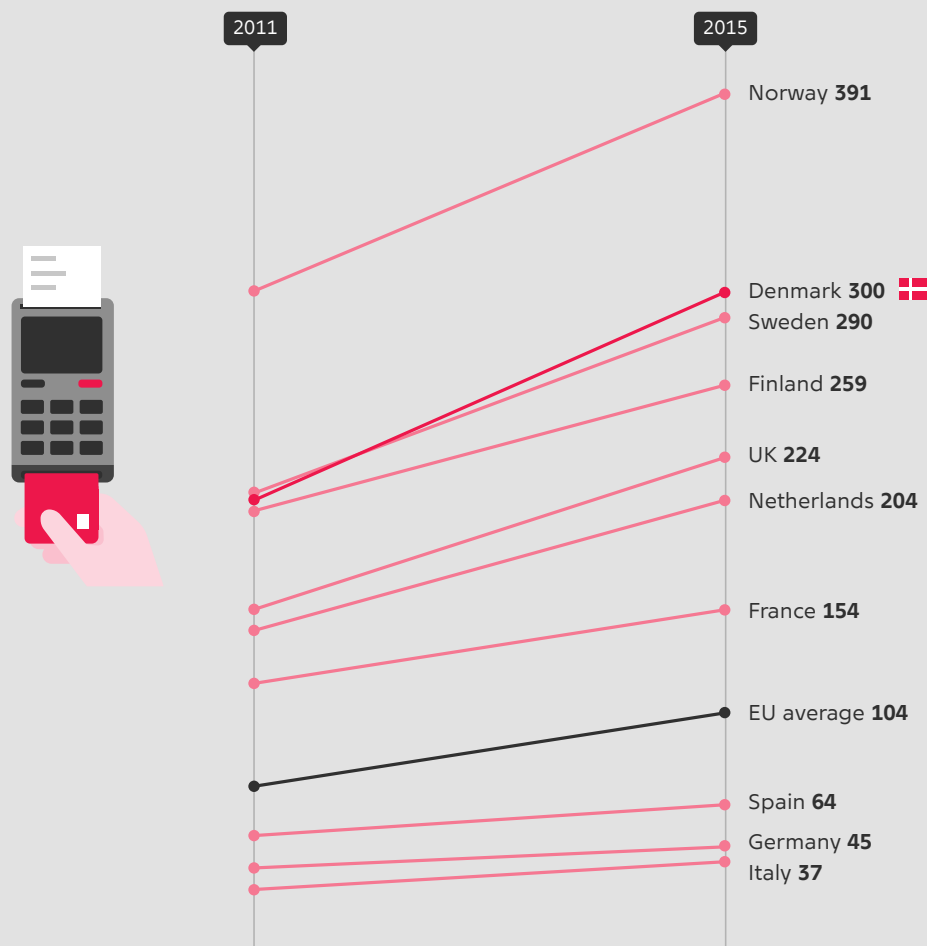
Prevalence of instant payment systems in Europe — Chart 2

Note: Systems complying with the CPMI's definition of instant payments, cf. CPMI, *Fast Payments – Enhancing the Speed and Availability of Retail Payments,* No. 154, November 2016.
Source: BIS Quarterly Review, March 2017, *The Quest for Speed in Payments* and Norges Bank.

Retail turnover etc., broken down by cash, cheque and card payments — Chart 3

Note: MobilePay payments (from 2013) are payments with an underlying payment card and therefore included in card payments. Cheques have practically not been used in recent years, and at the end of 2016 Danish banks stopped cashing cheques. Retail turnover etc. is a broader compilation compared with Statistics Denmark's compilation of retail turnover.
Source: Statistics Denmark, Danmarks Nationalbank, Finance-Denmark, Nets and own calculations.

2   BIS Quarterly Review, March 2017,
     The Quest for Speed in Payments.

3   Cf. BIS CPMI, November 2016, *Fast Payments – Enhancing the Speed and Availability of Retail Payments,* No. 154.

Chart 4

5

Danes' card use is among the highest in Europe

Per capita card payments in selected European countries

2011   2015

Norway **391**

Denmark **300**
Sweden **290**

Finland **259**

UK **224**
Netherlands **204**

France **154**

EU average **104**

Spain **64**
Germany **45**
Italy **37**

Source: European Central Bank and Norges Bank.

The typical Dane has more than one payment card
The Dankort is the most popular payment card in Denmark, with a total of about 5.4 million Dankort and VisaDankort issued.[4] Each adult Dane has an

average of 1.2 Dankort. In 2016, approximately 1.4 billion Dankort payments were made, totalling kr. 415 billion, equivalent to about 20 per cent of GDP.

Moreover, many Danes have an international credit card such as MasterCard or Diners Club – typically as a personal supplement to their Dankort or as a company card. Danes use their international credit cards less frequently than their other payment cards. In 2016, around four out of ten payments

4   The VisaDankort is a co-branded payment card, i.e. it is both a Dankort and a Visa card. Approximately 4.7 million VisaDankort have been issued.

with international credit cards were made outside Denmark.

Under-18s primarily hold international debit cards such as Visa Electron and MasterCard Debit. This should be seen in the context that international debit cards have built-in balance control, entailing that the payer cannot overdraw his or her account.

In recent years, international debit cards have also become more popular among the rest of the population. This is evidenced by the number of cards issued, which increased from slightly above 1 million to 2.4 million during the period from 2009 to 2016.

Denmark is a digital country with digital citizens

Denmark is one of the most digitised countries in the world, with the highest score on digital performance in Europe, cf. Chart 5 and Box 4. One explanation is the large number of Danes shopping online. According to data from Statistics Denmark, 77 per cent of the population aged 16-89 shopped online in 2016.

Denmark also scores high on public-sector digitisation, especially for the scope of digital communication between citizens and the public sector. According to Statistics Denmark, 94 per cent of all citizens had NemID in 2016. Targeted public-sector focus on digitisation was ensured with the creation of the Danish Agency for Digitisation in 2011, which has

---

All consumers are entitled to a payment card   Box 3

In 2016, a statutory provision established that all Danish consumers must have access to making payments using payment cards, including online payments. This is part of the Payment Accounts Act, based on an EU Directive.[1] Previously, a good practice requirement stipulated that Danish banks should give all retail customers access to making payments using a debit card with balance control.

---

1. Directive 2014/92/EU (PAD) on, inter alia, access to payment accounts with basic features.

European Commission Index for Digital Economy and Society   Box 4

The *Connectivity* dimension measures the deployment of broadband infrastructure, its quality and price level. The *Human Capital* dimension measures e.g. individuals use of the internet and their digital skills. The *Use of Internet* dimension accounts for the variety of activities performed by citizens online e.g. social media or online shopping and banking. The *Integration of Digital Technology* dimension measures the digitisation of businesses e.g. use of electronic invoicing and online sales. The *Digital Public Services* dimension measures the digitisation of public services and the availability of online services.

Source: European Commission, Digital Economy and Society Index (DESI) 2017. For Norway data is from DESI 2016.


Digital communication with the public sector   Box 5

An important element in the digitisation of the public sector was the launch of the NemID shared electronic identification solution in 2010. NemID was developed based on an agreement between Danish banks and the public sector. NemID is a shared login to both public and private self-service solutions, such as online banking.

As part of the implementation of the Danish Agency for Digitisation's strategy, the Folketing (Danish parliament) adopted legislation on mandatory digital self-service during the period from 2012 to 2015. Under this legislation, it became mandatory for Danish citizens to use digital solutions to communicate in writing with public authorities in a number of service areas, for instance tax. All disbursements from the public sector are also electronic. It also became mandatory to receive digital post from the public sector. The target efforts in digital communication between citizens and the public sector are reflected in the high prevalence of NemID, even among the oldest Danes.
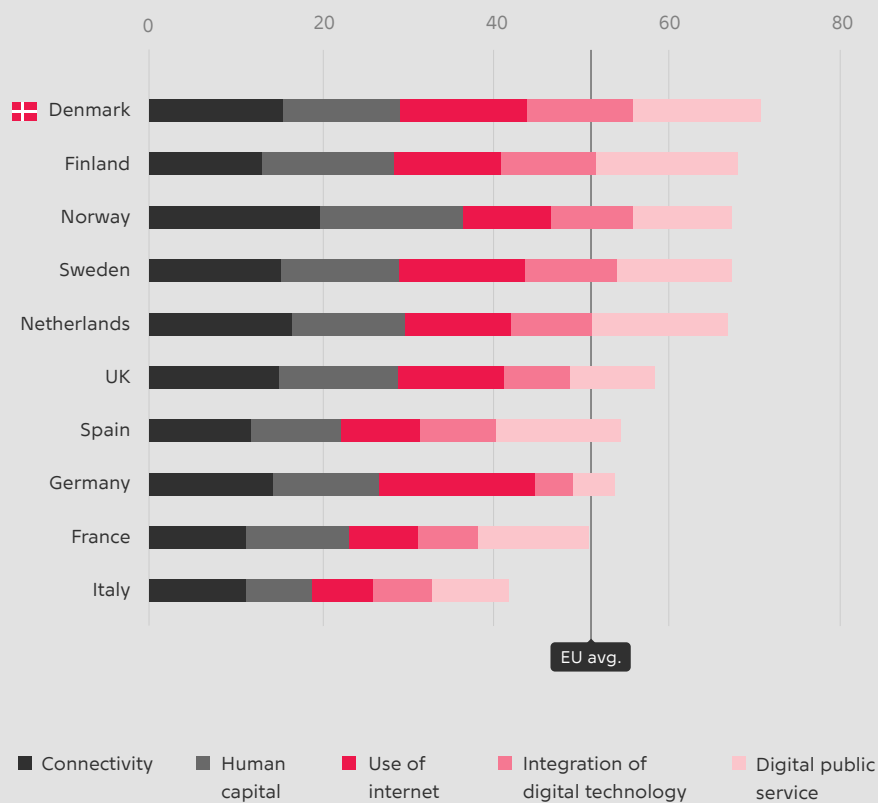
Danes with NemID

Source: Statistics Denmark.

Chart 5　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　**7**
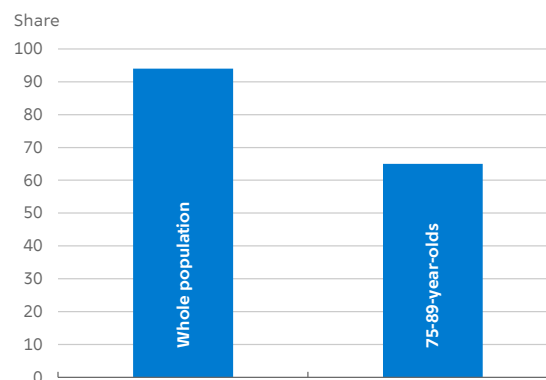
Denmark is
a digital front-runner

European Commission's Digital Economy and Society Index, 2017

Source:　European Commission.

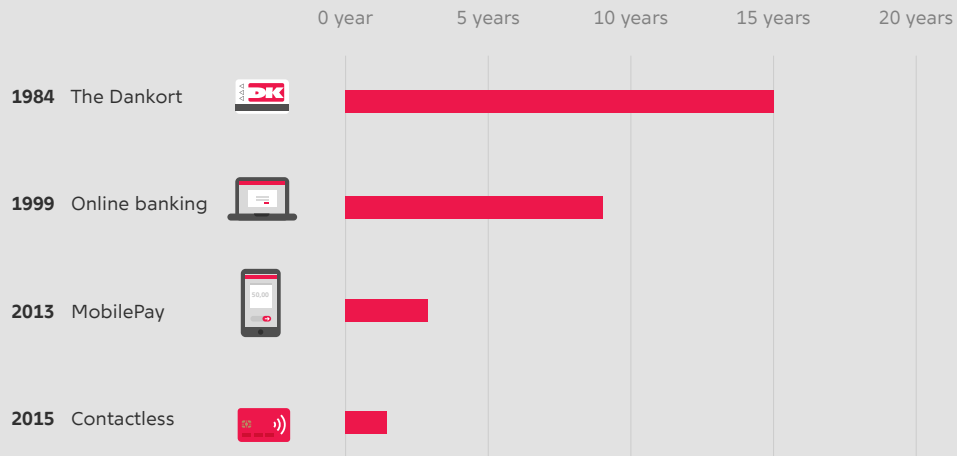played a key part in spreading digitisation to virtually the entire Danish population, cf. Box 5.

**Danes are increasingly quick
to embrace new payment technology**
Danes have become increasingly quick to adopt new payment options over time, cf. Chart 6. About three years after the 2013 launch of MobilePay in the Danish payments market, this mobile payment solution had been adopted by 3 million users. When the Dankort was launched in 1984, it took more than 15 years for the solution to be adopted by the same number of users.

Contactless payments are the latest example of how quickly Danes can change their payment behaviour. The first contactless Dankort was launched in the Danish market in the summer of 2015. A year and a half later, more than half of all issued Dankort had a contactless feature, and contactless payments accounted for more than 15 per cent of all Dankort payments.

Chart 6   8

Danes are quicker to embrace new technology

How long it has taken for new payment instruments to be adopted by 3 million users

	0 year	5 years	10 years	15 years	20 years

1984 The Dankort

1999 Online banking

2013 MobilePay

2015 Contactless

Source: Nets, MobilePay, Statistics Denmark.

Lindis Oma
lo@nationalbanken.dk

FINANCIAL STABILITY

DANMARKS NATIONALBANK